

List of Current Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 - 13 (Cancelled)

14. (Currently amended) In a measuring point including a reference half cell and a measuring half cell, a method for monitoring the reference half cell for determining ~~and~~ or monitoring an ion concentration of a medium, the ion concentration of the medium being determined on the basis of at least one measurement signal determined between the measuring half cell and the reference half cell, the method comprising the steps of:

intermittently operating the measuring point in an operating mode and in a test mode;

measuring the ion concentration in the operating mode; ~~and~~

checking the proper functioning of the reference half cell in the test mode;

measuring the noise components of the measurement signals in the operating mode and in the test mode;

recognizing a malfunctioning of the reference half cell on the basis of a relationship of the changes of the noise components in the operating mode and in the test mode; and

outputting a corresponding report.

15. (Previously presented) The method as claimed in claim 14, further comprising the step of:

determining the noise component of the measurement signal in the test mode and in the operating mode.

16. (Currently amended) The method as claimed in claim 15, further

comprising the steps of:

activating an impedance in the test mode in the a measuring circuit for determining the noise component; and
changing the impedance in the operating mode[[,]].

17. (Previously presented) The method as claimed in claim 16, wherein:
an impedance-changing element is activated for the purpose of changing the impedance.

18. (Previously presented) The method as claimed in claim 17, wherein:
a switch is actuated as the impedance-changing-element, which is connected in parallel with the impedance for the purpose of changing the impedance.

Claim 19 (Cancelled)

20. (Currently amended) The method as claimed in claim ~~19~~ 14, further comprising the steps of:

continually storing the noise components of the measurement signals, or the relationships of the changes of the noise components of the measurement signals in the operating mode and in the test mode; and

outputting a report, concerning after which length of time the reference half cell will probably exhibit a malfunction.

21. (Currently amended) In a measuring point including a reference half cell and a measuring half cell, an apparatus for determining ~~and~~ or monitoring an ion concentration of a medium, the apparatus comprising:

said measuring point;

a measuring circuit located between the measuring half cell and the reference half cell; and

a control and evaluation unit, which determines the ion concentration of the

medium on the basis of a measurement signal determined in said measuring circuit, wherein:

said control and evaluation unit operates the measuring point intermittently in an operating mode and in a test mode; and

said control and evaluation unit determines the ion concentration of the medium in the operating mode and checks the proper functioning of the reference half cell in the test mode, wherein:

said control and evaluation unit interprets a change of the relationship of the noise components in the operating mode and in the test mode as an indication that the reference half cell is working correctly, as soon as the change lies above a predetermined threshold value.

22. (Previously presented) The apparatus as claimed in claim 21, wherein:
in said measuring circuit, an impedance is provided, which is changed, preferably short-circuited, in the operating mode and is added into said measuring circuit in the test mode.

23. (Previously presented) The apparatus as claimed in claim 22, further comprising:

an impedance changing element, which is connected in parallel with the impedance; and

said impedance changing element is actuated by said control and evaluation unit.

Claim 24 (Cancelled).

25. (Currently amended) The apparatus as claimed in claim ~~24~~ 21, wherein:
said control and evaluation unit outputs a malfunctioning of the reference half cell, when the relationship of the noise components of the measurement signal in the

operating mode and in the test mode is approximately unchanged.

26. (Currently amended) Apparatus as claimed in claim ~~24~~ 21, wherein:
said control and evaluation unit uses statistical evaluation methods for recognizing a malfunctioning, or the correct working, of the reference cell.